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# **CHAPTER 1 PURPOSE OF AND NEED FOR ACTION**

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## **1.1 Underlying Need for Action**

To maintain the reliability of its electrical system, Bonneville Power Administration (BPA) needs to expand the range of vegetation management options for about 30 kilometers (19 miles) of a transmission line right-of-way between Bonneville Dam and Hood River, Oregon. Trees and other tall-growing vegetation threaten system reliability by growing or falling into transmission lines. Shrubs and similar vegetation also threaten reliability by growing into access roads and keeping maintenance crews from needed access to transmission towers and lines. When hot ambient temperatures combine with large loads of transmitted electricity, conductors may sag into trees under high-voltage lines, resulting in fires, line outages, equipment shutdowns and disruptions of electrical power.

The Bonneville-Hood River 115-kV transmission line right-of-way is within the Columbia Gorge National Scenic Area (NSA) (Figure 1). The Gorge NSA's founding legislation contained an exemption clause that allowed BPA to continue its then-current maintenance activities (Columbia River Gorge National Scenic Area Act (CRGNSA Act), P.L. 99-66, November 17, 1986). However, BPA was not using herbicides at that time. Vegetation management methods currently used in this area are inadequate to prevent long-term regrowth of tall-growing species. For example, hand-cutting with chainsaws, combined with the characteristics of climate and vegetation in this area, have led to rapid re-sprouting of certain species and a dense growth that is difficult and dangerous for clearing personnel to maintain. Frequent and costly treatments are required.

## **1.2 Purposes**

In meeting the underlying need, BPA wants to achieve the following purposes, or goals:

- Comply with national and regional policies and mandates, including the United States District Court for the District of Oregon's Mediated Agreement on the use of herbicides in the U.S. Forest Service (USFS) Pacific Northwest Region (Region Six), the Final Environmental Impact Statement (FEIS) for Managing Competing and Unwanted Vegetation (USDA Forest Service 1988), and the CRGNSA Act.
- Protect the natural and human environment from adverse impact.
- Maintain electrical reliability of the Federal Columbia River Transmission System (FCRTS).
- Provide for administrative efficiency and cost effectiveness.



### 1.3 Background: History and Legal Requirements

The Bonneville-Hood River transmission line right-of-way crosses federal, state, city, and private lands in the Columbia Gorge NSA on the Oregon side of the Columbia River (Figure 1). Depending on who owns or manages the land, vegetation on BPA's right-of-way may be managed in different ways.

**Vegetation Management on USFS Land.** BPA manages its transmission line rights-of-way in the Columbia Gorge in accordance with Right-of-way Management Plans developed in cooperation with the USFS. These plans are required by the 1974 Memorandum of Understanding (MOU) between the two agencies. National Environmental Policy Act (NEPA) documents must also evaluate the impacts of maintenance processes identified in Right-of-way Management Plans. In 1983, initial Management Plans were affected when herbicide use was eliminated as a result of the U.S. District Court for the District of Oregon's injunction on the use of herbicides within USFS Region Six (*Northwest Coalition for Alternatives to Pesticides v. Yeutter*, supra.). This injunction was lifted in 1989 after USFS Region Six completed a final Environmental Impact Statement (EIS) on Managing Competing and Unwanted Vegetation, issued a Record of Decision (ROD), and negotiated a Mediated Agreement with the lawsuit plaintiffs and the court. This Mediated Agreement now determines the procedures to be used when any vegetation management program on USFS lands proposes use of herbicides. In 1993, the USFS issued guidelines for complying with the terms of that agreement by requiring site-specific analysis and public involvement for most vegetative management activities, including those on rights-of-way.

Between 1984 and 1996, BPA did not use herbicides for vegetation management on federal lands in the NSA, even though the CRGNSA Act specifically exempts BPA transmission line maintenance from its provisions. (The Act also exempts transmission maintenance from the standards and guidelines established by the implementing NSA management plan.) Mechanical and hand-clearing methods have been used to remove or control undesirable vegetation (defined as tall-growing vegetation threatening to grow or fall into transmission lines, vegetation bordering access roads, and noxious weeds or other pest species). During this period, cut deciduous trees have re-sprouted, producing even more dense vegetation; conifer seedlings have re-invaded cleared areas; maintenance frequency has increased; and BPA has been unable to establish more desirable low-growing species, which would reduce the cost and environmental impacts of vegetation management activities.

**Prototype Study.** In March 1996, in response to the need to expand the range of vegetation management options in the NSA, BPA, its consultants, and the USFS (NSA) completed an evaluation of current vegetation management practices. They then developed management strategies for the NSA that would not adversely affect sensitive resources (David Evans and Associates, Inc., 1996). Those strategies, which include combinations of manual, mechanical, biological and chemical treatments, were designed to be suitable for BPA's transmission rights-of-way throughout the NSA. They were first proposed for use on the Hanford-Ostrander and North Bonneville-Midway corridors and

were evaluated in BPA's *Columbia River Gorge Vegetation Management Final Environmental Assessment* (DOE/EA-1162), September 1996.

Based on that site-specific environmental analysis, the vegetation management plan for segments of the Hanford-Ostrander corridor and North-Bonneville-Midway corridor was updated. An Integrated Vegetation Management (IVM) approach, including herbicide application, was used on these corridor segments (approximately 16 km [10mi]) on the Washington side of the NSA in the summer of 1997.

**Vegetation Management on State, City and Private Land in the NSA.** On BPA rights-of-way crossing state, city and private land in the NSA (as elsewhere in BPA's service area), any vegetation management methods proposed, including herbicides, are governed by federal, state and EPA regulations and by BPA's easements rights. Generally, BPA notifies private property owners before vegetation management activities begin on their land. At that time, concerns about the vegetation control methods proposed for the property, including herbicides, are discussed and resolved.

#### **1.4 Decisions To Be Made**

**BPA Decision:** Whether to change its vegetation management program for approximately 30 km (19 mi) of the Bonneville-Hood River transmission line between Bonneville Dam and Hood River, Oregon (within the boundaries of the NSA).

Before making the decision, BPA, as a federal agency, must comply with requirements of the National Environmental Policy Act (NEPA) to analyze the environmental effects of proposed federal actions.

**USFS Decision:** Whether to allow modification of BPA's existing Right-of-way Management Plan (1982) for the Bonneville-Hood River transmission line in the NSA.

The USFS decision must be made in compliance with NEPA and with the Mediated Agreement.

This Environmental Assessment (EA) and its associated public involvement program are designed to meet requirements for both agencies.

#### **1.5 Public Involvement**

On October 27, 1997, a letter was sent to area landowners and others potentially interested in the project, and a public notice was published in The Oregonian newspaper. The letter and notice announced the proposal and initiated the scoping period. (Scoping is the gathering of topics and issues for consideration in an environmental study.) Comments were accepted through November 26, 1997. Three comments were received (see Appendix A). Commenters' concerns are summarized here, followed by a response or a listing of where in the EA the issue is addressed.

- 1) One commenter was concerned that herbicides would migrate hydraulically to adjacent private property which is used for a small organic market garden; she asked to extend her 5-year-old agreement with BPA that chemicals not be applied in the right-of-way

that crosses above the property on state and private land. (Response: Sections 3.4.1 and 3.5.1 discuss the persistence and migration of herbicides in soils and water. Given the properties of the herbicides proposed for use, the methods of application, and the soil and water resources in the area, herbicides are not expected to contaminate the organic garden. However, because of the nature of the commercial operation and the request to extend the agreement, BPA will continue to honor the property owner's request for no chemical application on the right-of-way adjacent to the market garden property.)

- 2) One commenter was concerned that chemicals could wash into a small, intermittent stream that feeds a lake on non-adjacent private land. (Response: The source of the intermittent stream is over 30 meters (100 feet) north of the right-of-way, and the stream, when flowing, does not cross any part of the right-of-way. As stated in the previous response, sections 3.4.1 and 3.5.1 indicate that, given the properties of the herbicides proposed for use, the type of specific application methods to be used, and the soil and water resources in the area, the herbicides would not likely contaminate the small, intermittent stream that feeds the lake.)
- 3) One property owner suggested that crews working on the right-of-way would detract from the backcountry horseback riding experience for commercial clients and requested notification of when and where vegetation management activities would occur on the right-of-way, so riders could avoid the area. (Response: Notification will be provided.)

## CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES

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### 2.1 Proposed Action: Integrated Vegetation Management (IVM) with Herbicides

BPA proposes to continue controlling undesirable vegetation on 30 km (19 mi) of its Bonneville-Hood River transmission line right-of-way using a program of Integrated Vegetation Management (IVM). This program is based on a method developed by BPA, consultants and the USFS with the long-term objective of preventing, where possible, the growth of unwanted vegetation (David Evans & Associates, 1996). It identifies discrete vegetative management zones in the Columbia Gorge NSA and the combination of techniques, including manual, biological and chemical methods, that would effectively control vegetation and meet environmental constraints within those zones.

The cost of manually clearing the right-of-way of tall-growing vegetation in 1997 was \$200 - \$300/acre. The proposed program would increase the cost to \$300 - \$400/acre, because crews would use both manual cutting and herbicide methods in the first two years to bring vegetation to manageable levels. Costs would decline significantly from \$400/acre for follow-up treatments because labor costs would be lower--herbicide application is considered a safer activity than using chainsaws and thus costs less--and treatments would be needed less often to keep the right-of-way free of tall-growing brush.

The proposed action focuses, with a few exceptions, on the publicly owned portions of the Bonneville-Hood River right-of-way within the Columbia Gorge NSA (Figure 1). There are two main reasons for this focus: Over the last few years, vegetation management standards have changed on USFS administered lands and BPA must meet those new standards (see section 1.3), whereas BPA's individually negotiated maintenance agreements with private landowners would remain in place unless the landowner and BPA agree on a need to change them.

The remainder of section 2.1 describes the proposed vegetation management strategies, methods and treatment zones for the Bonneville-Hood River right-of-way. Chapter 3 describes the process and criteria used to define the zones and their techniques.

#### 2.1.1 Strategies

The Mediated Agreement defines five alternative strategies that should be considered when analyzing vegetation management proposals: prevention (the preferred strategy as documented in the USFS 1988 FEIS Record of Decision), correction, early treatment, maintenance, and no action. The proposal incorporates four of those strategies.

**Prevention.** The goal of IVM is to prevent, where possible, the occurrence of tall-growing vegetation that would interfere with the safe, reliable operation of the transmission line by encouraging establishment of low-growing species.

**Correction.** The proposal recognizes that vegetation on some parts of the right-of-way is at or near the point of threatening the reliability of the transmission system. In those



areas, corrective action would be taken to eliminate tall trees and shrubs and provide the environment in which low-growing species can compete and thrive.

**Early Treatment.** In some parts of the right-of-way, low-growing vegetation already has been established and needs only limited treatment to maintain that condition. The proposal recognizes, however, that due to the characteristics of the right-of-way, prevention may not be an attainable goal. Because the right-of-way is a long, narrow strip of land where the vegetation is different from that of most of the surrounding land, conifers and other tall-growing species from the adjacent forest may seed themselves on the right-of-way, especially where low-growing vegetation has not become established. Thus regular early treatment would be needed to prevent tall-growing species from taking hold. BPA may reseed or plant a few areas, as appropriate, to prevent repeat treatments.

**No Action.** On some portions of the right-of-way, vegetation control is unnecessary because the line spans steep canyons so high above the trees that there is little danger they will grow into the conductors and threaten system operations. These areas are defined by the STC zone (see section 2.1.3). If an individual tree should grow close to a conductor, the tree would be removed.

In general, BPA proposes to use the correction strategy for most of the right-of-way (except in the STC zones) for about 1 - 3 years. Later, depending on vegetation regrowth, the program would focus on early treatment, with the ultimate goal of prevention.

### **2.1.2 Vegetation Management Techniques**

BPA proposes to use the following techniques to control vegetation on the Bonneville-Hood River right-of-way. They would be used in various combinations, depending on the vegetative management zone (see section 2.1.3).

**Manual.** Hand-pull target plants or use hand-operated tools, including chain saws, to cut herbaceous or woody target species.

**Biological.** Two techniques may be used:

- Encourage low-growing species to dominate the vegetation community, where necessary, by eliminating the taller trees or by reseeding cleared areas with grasses and forbs compatible with local vegetation.
- Introduce species-specific parasites such as the cinnabar moth to control tansy ragwort, a noxious weed. This technique would be used only to control noxious weeds.

**Herbicides.** Herbicides to kill target plants would be applied from the ground, using hand-pumped backpack sprayers. No chemicals would be applied using rubber-tired tractors, trucks, truck-mounted sprayers, or tracked vehicles. No aerial spraying would be done. Herbicides proposed for this project are approved under the Mediated Agreement. Herbicides could be applied in the following ways, depending on the zone:

- Cut-stump application: Herbicide is applied to the surface of cut stumps of hardwood trees and shrubs to prevent re-sprouting.

- Basal application: Herbicide is applied to the surface of the target tree's main stem, from ground level to a height of 30 - 45 centimeters (12 - 18 inches).
- Spot foliar: Herbicide is applied directly to the individual target plant's foliage.

Mechanical methods, which use crawler tractors or low-ground-pressure tractors with blades or mowing attachments to cut, till, or mow undesirable plants, would not be used (see section 2.3).

### **2.1.3 Treatment Zones**

The Bonneville-Hood River transmission line right-of-way was divided into five treatment zones. The zones are distinguished by site characteristics such as slope and the presence or absence of significant resources such as streams, special visual quality, or sensitive habitat. The site characteristics determine the type of vegetation management techniques and herbicides allowed in that zone: treatments are limited by each zone's most environmentally constraining characteristic. Chapter 3 describes the process used to determine the zones and allowable techniques in more detail.

Table 1 defines the proposed zones and their treatments. Figure 2 shows the location of the zones along the right-of-way.

## **2.2 Status Quo Alternative**

BPA would continue the current practice of controlling undesirable vegetation on the Bonneville-Hood River right-of-way, using primarily manual and biological methods as described for the Proposed Action. No chemical methods (herbicides) would be used. This alternative corresponds most closely to the USFS "Maintenance" strategy, in which treatment activities are administered in small, frequent doses in order to maintain current conditions.

Methods used would continue to depend on species' growth characteristics and proximity to sensitive resources such as streams. These areas would be defined on a case-by-case basis; zones of allowable vegetation management techniques would not be defined. As is current practice, methods frequently would be used in combination with one another.

## **2.3 Options Eliminated from Detailed Evaluation**

### **2.3.1 Mechanical Techniques**

Because of the poor access and steep terrain of most of the right-of-way, mechanical mowing methods were eliminated from consideration. Such equipment either could not reach the right-of-way or, if it did, the resulting ground disturbance could cause unacceptable problems with erosion in the steep terrain.

### **2.3.2 Prescribed Burning**

The USFS recognizes prescribed burning (in addition to manual, mechanical, biological and chemical methods) as a reasonable vegetation management technique in many

circumstances. Fire near electrical lines, however, poses a major threat to system operations. Smoke coats the insulators, thus allowing the power to flash past the insulators and go to ground, interrupting service. For this reason, prescribed burning is not a reasonable vegetation management technique for transmission line rights-of-way.

**Table 1 Treatment Zones**

<b>Zones</b>	<b>Treatment Method</b>
<b>STC</b>	Any areas in the corridor with greater than 38 meters (m) (125 feet [ft]) vertical distance between the ground surface and transmission lines.  <b>Methods:</b> Individual trees that could grow or fall into the transmission conductor danger zone would be removed by manual methods. Any vegetation growing within 5 m (16 ft) of the conductor would be considered within the danger zone. Noxious weeds would be removed using biological or spot-foliar herbicide treatments.  <b>Herbicides:</b> Glyphosate, picloram, triclopyr, and dicamba may be prescribed to kill noxious weeds only.
<b>R</b>	Any areas in the corridor within 91 m (300 ft) of surface waters.  <b>Methods:</b> All manual and biological treatments; cut-stump herbicide treatments only.  <b>Herbicides:</b> Rodeo™ formulation of glyphosate only, with a 3-m (10-ft) buffer around surface waters.
<b>V</b>	Lands that have either a significant visual resource or habitat suitable for Forest Sensitive species. <sup>1</sup> Steep slopes (>25%) may also be present.  <b>Methods:</b> All manual, biological, and allowable herbicide treatments.  <b>Herbicides:</b> Glyphosate, picloram, triclopyr, and dicamba may be prescribed for cut-stump, basal-application, or spot-foliar treatments. Herbicide use would be restricted in sensitive species habitat or in potential habitat areas.
<b>SS</b>	Lands with a steep slope (> 25%).  <b>Methods:</b> All manual, biological, and allowable herbicide treatments.  <b>Herbicides:</b> Glyphosate, picloram, triclopyr, and dicamba may be prescribed for cut-stump, basal-application, or spot-foliar treatments.
<b>Z</b>	Land classified by the USFS as Late-Successional Reserve (LSR) <sup>2</sup> with no other environmental constraints.  <b>Methods:</b> All manual, biological and allowable herbicide treatments.  <b>Herbicides:</b> Glyphosate, picloram, triclopyr, and dicamba may be prescribed for cut-

<sup>1</sup> Forest Sensitive species: Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by: a significant current or predicted downward trend in population numbers or density; or a significant current or predicted downward trend in habitat capability that would reduce a species' existing distribution (Forest Service Manual 2670.5(19)). In: Spotted Owl Management EIS, USFS, Jan. 1992.

<sup>2</sup> Late Successional Reserves (LSR) are identified to protect and enhance conditions of mature and old-growth forest ecosystems which serve as habitat for species adapted to those conditions.

	stump, basal-application, or spot-foliar treatments.
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## 2.4 Performance of Alternatives

Table 2 summarizes how the alternatives meet the purposes for the project as described in section 1.2.

**Table 2 Predicted Performance Summary**

<b>Decision Factor</b>	<b>Proposed Action</b>	<b>Status Quo</b>
<b>Complies with national and regional policies and mandates</b>	In compliance.	In compliance.
<b>Protects the natural and human environment</b>	Protects sensitive resources by defining resource zones, within which vegetation control techniques are tailored to the sensitivity of resources within each zone. Allows treatment method considered to be low risk to safety of workers, according to OSHA.	May protect some sensitive plant resources by not using herbicides, but may harm others due to annual trampling and disturbance on steep slopes. Worker safety continues to be high risk with higher frequency of chainsaw use.
<b>Maintains reliability of the FCRTS</b>	Reduces the potential of tree-caused outages, and the need for annual re-treatments. Increases opportunity to establish low-growing vegetation communities and potential to achieve long-term goal of prevention.	Reduces the potential of tree-caused outages. Requires frequent re-cutting. Little opportunity to achieve long-term goal of prevention.
<b>Provides administrative efficiency and cost effectiveness</b>	Allows for lower long-term costs because of lower treatment cost and fewer repeat treatments. Broader range of techniques maximizes efficiency of treatments. Zone system ensures consistent treatment in similar areas.	Maintains higher long-term costs because of annually increasing treatment costs. The limited number of techniques means more frequent maintenance is required; consistent treatments in similar areas are not guaranteed.

## CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

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The proposal would control vegetation along 30 km (19 mi) of transmission line right-of-way in the Columbia River Gorge National Scenic Area between Bonneville Dam (west of Cascade Locks) and Hood River, Oregon. Using Geographic Information System (GIS) data from the USFS, supplemented with field work performed by USFS and BPA specialists, BPA mapped the resources likely to be affected by various vegetation management activities. The right-of-way was then divided into proposed treatment zones. These zones, developed by BPA, USFS, and a consultant (David Evans and Associates, 1996), define the vegetation management activities allowed in that zone based on the presence of the most sensitive resource. Vegetation control techniques are designated that would not adversely affect the sensitive resources in that zone. Table 1 (Chapter 2) defines the zones; Figure 2 (Chapter 2) shows where the zones are along the transmission line; Table 3 (below) indicates the amount of land in each zone.

**Table 3 Amount of Right-of-way in Treatment Zones**

<b>Zone</b>	<b>Length: km (mi)</b>	<b>Area: ha (ac)</b>
<b>STC</b>	<b>2.1 (1.3)</b>	<b>9.3 (23.2)</b>
<b>R</b>	<b>2.6 (1.6)</b>	<b>11.3 (28.3)</b>
<b>V</b>	<b>15.2 (9.5)</b>	<b>69.0 (172.6)</b>
<b>SS</b>	<b>9.9 (6.2)</b>	<b>45.1 (112.8)</b>
<b>Z</b>	<b>0.5 (0.3)</b>	<b>1.8 (4.5)</b>

The remainder of the chapter describes the existing environment and the effects of vegetation management alternatives on natural and human resources in the project study area. Table 4 summarizes that information.

### 3.1 Study Area

About 65% of the project area is within the Mt. Hood National Forest and the Columbia Gorge NSA, although about 12 km (7.5 mi) crosses state, city and private ownerships. The right-of-way passes through three state parks: Wygant State Park, Vinzenz Lausmann Memorial State Park and Seneca Fouts Memorial State Park. In this project area, the eastern boundary of the NSA is at Vinzenz Lausmann State Park, several miles west of Hood River, Oregon.

**Table 4 Affected Environment and Environmental Consequences Summary**

<b>Environ-mental Resource</b>	<b>Existing Conditions</b>	<b>Proposed Action</b>	<b>Status Quo</b>
<b>Vegetation</b>	Most of ROW in dense thickets of shrubs and seedlings of alder, maple, and conifers; in 2 km, conductors are high enough to leave mature hem-lock/Douglas fir stands. Potential habitat for 28 sensitive plant species but only one found (long-bearded hawkweed).	Herbicides allow change from tall-growing species to low-growing shrubs. Noxious weeds eliminated. Low risk of impact to sensitive species from trampling, felling trees, and herbicides. P zone protects long-bearded hawkweed and known sensitive habitat.	Focus on manual cutting would leave vegetation unchanged. Noxious weeds would continue to multiply. Sensitive species could be affected by trampling or tree-felling.
<b>Wildlife</b>	Large and small mammals; birds, including raptors; fish and other species inhabit area. Sensitive species habitat includes spotted owl dispersal, reproductive and foraging habitat.	Wildlife temporarily disturbed a few days every 2-3 years when workers present. Spotted owl habitat not affected because fewer than 10 trees per acre removed. Herbicides proposed do not bioaccumulate, but some may be hazardous or slightly toxic to some species. R zone protects aquatic species from herbicides.	Wildlife could be disturbed more often than under proposal because workers would return at least annually.
<b>Soils</b>	Soils are primarily volcanic, often cobbly, on steep slopes. Rock outcrops and cliffs are common. Erosion and mass movement is evident in much of the area.	Slight run-off and localized erosion would recur until low-growing vegetation is established. Herbicides unlikely to build up in soils due to herbicide characteristics and neutral to moderately acidic soils.	Erosion and run-off potential slightly higher than proposal due to workers annually traversing steep slopes.
<b>Water Resources</b>	ROW crosses 15 perennial and 8 intermittent streams with steep gradients, which flow into the Columbia River a half mile away.	Low impact on water quality because new stream surface exposed is minimal; R zone protects water from herbicide effects; and erosion and sedimentation are low.	Slightly greater sedimentation impacts than proposal due to annual worker disturbance.
<b>Visual and Recreation Resources</b>	Project is in CRGNSA, established to preserve scenic quality. ROW visible from many scenic and recreational sites.	No noticeable change to visual quality because no broadcast herbicide spraying allowed. All visually sensitive sites in V zone.	Visual quality would remain the same.
<b>Human Health and Safety</b>	This ROW has no history of maintenance worker accidents, although others do. ROW is accessible to hikers, mountain and dirt bikers.	Moderate risk to workers of reproductive or general health effects from backpack sprayers using dicamba, glyphosate, or triclopyr. Reduced risk of accidents to workers using manual methods due to fewer visits, less dense vegetation.	Current risk of worker accidents from manual methods continues or increases as vegetation from repeated manual cuttings becomes more dense.
<b>Air Quality</b>	CRGNSA is Class II airshed, allowing for moderate degradation of air quality.	Short-term, minimal air quality reductions from vehicle/ machinery exhaust, herbicides.	Air quality reductions from exhaust slightly higher than proposal due to more visits.



Project area topography varies from moderate to very steep slopes, including some areas with almost vertical cliffs. Area elevations range from approximately 15 m (50 ft) at the western boundary to approximately 244 m (800 ft) in several areas. Steep slopes are common on one or both sides of creeks, which tend to flow in narrow canyons.

## **3.2 Vegetation**

The current vegetation management program has converted approximately 27 km (17 mi) of mature conifer forest to shrubs and tree seedlings characteristic of disturbed areas. In a few places, the right-of-way crosses 1.2 km (0.8 mi) of rocky outcrops and extended talus slopes such as those on the sides of Shellrock Mountain. Approximately 2 km (1.2 mi) of undisturbed mature conifer forest, primarily western hemlock/Douglas fir types, remain where the transmission conductors are high enough above the tree canopy that vegetation management activities are unnecessary, except for occasional single tree removal.

### **3.2.1 Proposed Action**

Because most of the area, if left alone, would produce tall-growing conifers and shrubs, any vegetation management program to keep tall-growing vegetation from interfering with transmission lines would adversely affect those species. If successful, the IVM program would, to a certain degree, also change the character of the vegetation in those parts of the right-of-way that now contain tall-growing shrubs and tree seedlings. Currently many of those areas, which have been subject to manual cutting for over a decade, contain dense thickets of red alder, bigleaf maple, other hardwoods, and young conifers. In those areas, in all zones except STC, the potential use of herbicides may prevent the re-growth of the tall-growing vegetation types and promote the establishment of low-growing native shrubs such as ocean spray (*Holodiscus discolor*), thimbleberry (*Rubus parviflorus*), snowberry (*Symphoricarpos albus*), and vine maple (*Acer circinatum*). Current invasions of noxious weeds are more likely to be controlled than under the existing program because herbicides would destroy the plants, whereas hand pulling and cutting allows them to re-sprout.

Areas in STC zones are nearly all western hemlock/Douglas fir types, with a few hundred feet at the eastern end of the project right-of-way in Douglas fir/grand fir or bigleaf maple. Removal of tall-growing vegetation in these zones is rarely required, so the vegetation would remain unchanged.

Because broadcast foliar herbicide treatments are not proposed in any zones, non-target species are unlikely to be adversely affected.

### **3.2.2 Status Quo**

Continuing the current vegetation management program of primarily manual cutting would leave vegetation types unchanged. Although efforts to retard growth and halt the spread of several dense stands of Scot's broom using biological agents would continue, noxious weeds along roadways would continue to multiply.

### **3.2.3 Endangered, Threatened, and Sensitive Plants**

In summer of 1997, a plant biologist surveyed the right-of-way for Region 6 Sensitive Plants listed for the Mt. Hood National Forest, for endemic species (those that occur only within the Columbia River Gorge and vicinity), for state-listed species, and for species on Oregon Natural Heritage Program (ONHP) Lists 1 through 4 (as described in the Management Plan for the Columbia River Gorge National Scenic Area, 1992). While potential habitat for 28 sensitive species occurs along the right-of-way, only one sensitive species, long-bearded hawkweed (*Hieracium longiberbe*), actually was found during the survey. This species is an endemic species; it is not federally or state-listed. ONHP places long-bearded hawkweed on List 4, which means it merits long-term concern because it may be rare or declining, but it is still apparently secure or too common to be threatened or endangered. No federally listed endangered or threatened plant species have been found in the project area.

### **3.2.3.1 Proposed Action and Status Quo**

Table 5 summarizes the effects of each vegetation management alternative on sensitive species. The potential for direct, indirect and cumulative impacts was considered.

Under both alternatives, direct impacts could include trampling by maintenance crew members. Under the Proposed Action, in zones where spot herbicide spraying is allowed, the destruction of sensitive species could be a direct impact. Because ground disturbing activities are not proposed for either alternative, direct impacts would not include disturbance to the below-ground portions of plants.

The use of biological agents, such as seed weevils, is not expected to directly or indirectly harm sensitive species because the agents target specific noxious weed species. A few botanists have expressed concerns that some biological agents are not as specific in their targets as expected. For example, the biological agent released to kill tansy ragwort (*Senecio jacobaea*) was known to attack native members of the genus *Senecio* in the 1960s and 1970s. Concerns about attacks on native *Senecio* dictated advancements in the testing of the biological agents; those used today in Oregon undergo extensive testing by the Oregon Department of Agriculture (ODA) to ensure they target only specific plants. The proposed project may use ODA-approved biological agents for knapweed species (*Centaurea sp.*) and Scot's broom (*Cytisus scoparius*); however, there are no members of these two genera on the sensitive species list, minimizing the possibility that native species would be harmed by the release of these biological agents.

The impact of project activities on the habitats of sensitive species was also considered. Removing trees and brush could change the composition of plant communities in shaded areas by opening the tree canopy. Biological methods which encourage a change in the plant community could also alter the habitat such that a sensitive species could no longer survive. An additional potential indirect impact is the effect tree and brush removal would have on the viability of individuals that normally grow in shady habitats. However, because the areas that require removal of woody species have been subject to tree cutting and disturbance in the past, the herbaceous plants in these areas generally are not native, shade-loving species that would suffer from an increase in light intensity.

**Table 5 Summary of Effects on Sensitive Plant Species**

Species	Habitat Not Present	Status Quo	Proposed Action
<i>Agrostis howellii</i>		NI	NI
<i>Arabis furcata</i>		NI	NI
<i>Bolandra oregana</i>		NI	NI
<i>Calamagrostis howellii</i>		MIH	MIH
<i>Carex macrochaeta</i>		MIH	MIH
<i>Castilleja rupicola</i>		NI	NI
<i>Cimicifuga elata</i>		MIH	MIH
<i>Corydalis aquae-gelidae</i>		MIH	MIH
<i>Cypripedium fasciculatum</i>	X	---	---
<i>Cypripedium montanum</i>	X	---	---
<i>Delphinium leucophaeum</i>		NI	NI
<i>Delphinium nutallii</i>		MIH	MIH
<i>Dodecatheon poeticum</i>		MIH	MIH
<i>Douglasia laevigata</i> var. <i>laevigata</i>		NI	NI
<i>Erigeron howellii</i>		NI	NI
<i>Erigeron oreganus</i>		NI	NI
<i>Hackelia difusa</i> var. <i>diffusa</i>		MIH	MIH
<i>Hieracium longiberbe</i>		MIH	MIH
<i>Lewisia columbiana</i> var. <i>columbiana</i>		NI	NI
<i>Montia diffusa</i>		MIH	MIH
<i>Montia howellii</i>	X	---	---
<i>Ophioglossum pusillum</i>	X	---	---
<i>Penstemon barrettiae</i>		NI	NI
<i>Poa gracillima</i> var. <i>multnomae</i>		MIH	MIH
<i>Poa laxiflora</i>		NI	NI
<i>Suksdorfia violacea</i>		MIH	MIH
<i>Sullivantia oregana</i>		NI	NI
<i>Syntheris stellata</i>		MIH	MIH

**NI** = No Impact

**MIH** = May Impact Individuals or Habitat, but will not likely contribute to a trend towards federal listing or to a population's or species' loss of viability

**WIFV** = Will Impact individuals or habitat such that the action may contribute to a trend towards Federal listing or cause a population's or species' loss of Viability

**BI** = Beneficial Impact

In general, as shown in Table 5, the level of effect on sensitive plants would be the same for both alternatives, although the source of the impact may be different. Those species that show no impact (NI) are in terrain where vegetation removal activities are unlikely, such as on cliffs, rock outcrops, talus slopes, under basalt overhangs or in an STC or P zone. (The P zone was created as a mitigation measure--see section 3.2.3.2.) For those species that show a "may impact" (MIIH) determination, the impact would be from trampling by maintenance workers, from trees being felled onto plants and not removed, and from herbicide use. The likelihood of effect is in most cases low, not likely to contribute to loss of viability of the population, and can be mitigated, as discussed in section 3.2.3.2.

### **3.2.3.2 Mitigation**

Mitigation measures for this project include avoiding potential habitat areas when feasible, using herbicides according to established protocol, conducting maintenance activities in sensitive species habitat at a time of year when they will have the least impact, keeping debris from felled trees out of potential habitat areas, and adopting a prevention strategy which will decrease the need for vegetation management activities. These mitigation measures are discussed below.

## **PROPOSED ACTION**

**Creation of the P Zone to Protect Sensitive Species.** To provide additional protection to sensitive species, a "P" zone was created for areas where proposed, endangered, threatened or sensitive species are suspected or documented. Three P zones were designated, based on previously published reports of sightings and one actual site identified during the 1997 survey. If sensitive plant habitat was in a zone with adequate protection (e.g., R zone), a new P zone was not identified. Locations of sensitive plant species and potential habitat have been mapped for use by BPA maintenance workers but are not published in this document to avoid the potential for removal by collectors of rare plants.

Manual clearing is allowed in P zones, but other restrictions such as time and method of clearing may be imposed in areas where sensitive species are documented, based on the ecology and habitat of individual species. The P zone imposes restrictions on herbicide use. Cut-stump and basal application treatments will be allowed, but spot spraying will not, unless an invasion by noxious weeds mandates this technique. For example, Scot's broom might resist control by manual methods. Spot spraying will be prohibited between April 1 and July 15 to avoid harming sensitive plants. In known habitat areas, herbicide use could be further restricted based on the impacts to sensitive species.

The area where long-bearded hawkweed was found has been designated a P zone. Maintenance workers will be given aerial photomaps showing long-bearded hawkweed habitat. The mapped area includes a buffer of 25 feet around individual plants. Because diffuse knapweed grows along the roadways adjacent to the long-bearded hawkweed habitat, only hand pulling will be allowed in the disturbed area next to the road. If Scot's broom invades the habitat, spot spraying can be used except between April 1 and July 15, when spraying could harm long-bearded hawkweed.

**Herbicide Use Restrictions.** Herbicide use would be allowed in some vegetation management zones under the Proposed Action. Herbicide handling and use must be done according to label instructions, by licensed, certified applicators, in accordance with precautions outlined in the Herbicide Information Profiles developed by the USFS PNW Region (Appendix B). With spot foliar treatments, applicators would apply herbicides only to target vegetation, with no dripping onto adjacent vegetation. After spraying, areas may be seeded or planted to prevent subsequent re-establishment of noxious weeds and other non-native species, if needed.

**Prevention Strategies.** For the Proposed Action, a “prevention strategy” would be adopted, which includes encouraging low-growing plant communities that prevent or discourage tree seedling establishment. Attractive native shrub species present along the right-of-way include oceanspray, vine maple, snowberry, and thimbleberry. These communities provide habitat and food for wildlife, while resisting invasion by non-native species and weeds such as knapweed and Scot’s broom. In addition, shrubs would discourage dirt bikers, who were encountered on maintenance roads during the survey, from creating additional trails in open areas. Dirt bikes could cause scars that would revegetate slowly and be prone to erosion in this rugged terrain.

## **STATUS QUO AND PROPOSED ACTION**

**Routine Maintenance Including Removal of Woody Vegetation.** Minimal woody species removal would be done adjacent to cliffs and rocky areas, to prevent an increase in light intensity that might harm shade-dwelling species. Trees that are felled into potential habitat areas, such as rocky slopes and seeps, would be removed so that they do not shade or cover sensitive species or alter habitat conditions. If possible, trees would be felled into disturbed habitat, where they will not affect sensitive species.

Because long-bearded hawkweed thrives both in open and shaded areas, shrub and tree removal will not have any negative, indirect impacts to this species due to a change in light intensity or exposure. To avoid trampling long-bearded hawkweed, woody vegetation would not be removed during the early growth and reproductive stages, between April 1 and July 15. If trees or shrubs are felled within or into the habitat of long-bearded hawkweed, they would be removed.

### **3.3 Wildlife**

The wildlife inhabiting and using the right-of-way include a diversity of birds, from song birds to raptors; large mammals including black tail deer (*Odocoileus virginianus*), elk (*Cervus canadensis*), and bear (*Ursus americanus*); and a host of other small mammals, insects, amphibians, reptiles, and micro-organisms.

Although the right-of-way has dissected the conifer forest, the resulting edge effects and habitat diversity have increased the habitat for some species. Deer and elk forage in these areas; certain song birds nest and feed there; and small mammals occupy the shrub habitat. On the other hand, the right-of-way has somewhat reduced the large tracts of conifer forest required for some species such as the spotted owl and flying squirrel.

Table 6 shows endangered and threatened species listed under the Endangered Species Act (ESA), those proposed for federal listing, and sensitive species as defined by Region 6 of the USFS. The entire project area is within a Habitat Conservation Area and a Critical Habitat Unit for the spotted owl.

Although the gray wolf (*Canis lupus*) is listed under ESA as endangered, and historical records of its presence in the Mt. Hood National Forest exist, a recovery plan for this species has not been initiated for Oregon. In addition, Region 6 of the USFS recommends that impacts to this species be assessed only in the North Cascades and Selkirk Mountains of Washington (Larson, 1998).

**Table 6 Sensitive Wildlife Species in Project Area**

Species	Status
Peregrine Falcon	Endangered (ESA)
Snake River Sockeye Salmon	Endangered (ESA)
Northern Bald Eagle	Threatened (ESA)
Northern Spotted Owl	Threatened (ESA)
Lower Columbia River Steelhead	Threatened (ESA)
Snake River Chinook Salmon	Threatened (ESA)
Bull Trout	Proposed Threatened (ESA)
Cope's Giant Salamander	Sensitive (Region 6)
Larch Mountain Salamander	Sensitive (Region 6)
Painted Turtle	Sensitive (Region 6)
Northwestern Pond Turtle	Sensitive (Region 6)
California Mountain Kingsnake	Sensitive (Region 6)
Columbia Gorge Neothremman Caddisfly	Sensitive (Region 6)

Wildlife could be affected by vegetation management activities in several ways. Workers can disturb wildlife, especially if work is done near nests or dens during the breeding season. Vegetation removal can destroy habitat for some species. In addition, although the data are limited, one or more of the herbicides may be hazardous or slightly toxic to some species of wildlife or invertebrates.

### **3.3.1 Proposed Action**

In all proposed vegetation management zones except STC zones, wildlife would be temporarily disturbed by workers entering the area to cut vegetation or to apply herbicides. However, these events would occur for only a few days every year for the first two or three years, then for a few days every three years, once low-growing vegetation is established.

In zones V, Z, and SS, BPA could use any one of four herbicides--triclopyr, picloram, glyphosate, and dicamba--in cut-stump, spot-foliar, and basal applications. Their potential to affect terrestrial wildlife is discussed in the Herbicide Information Profiles in Appendix B and summarized below. Herbicides used in spot foliar and stem treatments are not expected to affect wildlife because there is little or no potential for wildlife to be subjected to spray. Herbicides would not be applied using broadcast techniques in any zone. In addition, if any animals were to eat sprayed vegetation, the herbicides used, in general, do not bioaccumulate, although one study showed a slight increase in intestinal cancer in sheep grazing on picloram-treated pastures (Appendix B).

The Herbicide Information Profiles in Appendix B describe how toxicity for mammals, birds, and aquatic species is calculated. The dosages for different toxicity levels vary by wildlife type and method of exposure.

Dicamba is slightly toxic to mammals but does not bioaccumulate. With current use patterns, dicamba is not hazardous to endangered animals.

Glyphosate is practically non-toxic to birds and mammals and is practically non-toxic to bees. The Environmental Protection Agency identified one species of toad and one beetle species that may be endangered by glyphosate use, but these species are not found in the project area.

Picloram is practically non-toxic to birds and bees, and is slightly toxic to practically non-toxic in mammals and some species of fish. It has not been tested for chronic effects in wildlife species. It may be hazardous to some endangered invertebrates if applied to areas where they live; however, no endangered invertebrates have been identified for this project and picloram would not be used in riparian areas where the sensitive invertebrate species live.

Triclopyr is slightly toxic to mammals and birds, and practically non-toxic to bees. Wildlife mammals have not been studied to determine its acute or chronic effects. Laboratory studies show that Garlon 4 (a formulation of triclopyr), applied directly to water and artificially maintained for 96 hours at a concentration equal to 2 quarts per acre, is potentially harmful to aquatic organisms. Although studies in the natural environment have been unable to reproduce the laboratory effects, triclopyr is not used near water. The Environmental Protection Agency (EPA) has not determined if triclopyr is hazardous to endangered animals.

Fish and aquatic birds and animals may be present in the R zone. They are not likely to be adversely affected by herbicide use in this zone because only Rodeo™ formulation of glyphosate, which is "practically non-toxic to fish" (Appendix B), would be used in cut-stump treatments in the R zone. (Although Rodeo™ is labeled for use immediately adjacent to water, a 3-m [10-ft] no-herbicide buffer would be maintained along stream banks.) As a result, herbicides would not contaminate water used by aquatic species or wildlife. The project is not expected to significantly change the amount of shade at streambanks, so aquatic species would not be affected by warmer water temperatures.

In STC zones (about 2.1 km [1.3 mi]), in which little or no vegetation management activity would occur, fish and wildlife would not be affected.

**Effects on Endangered, Threatened and Sensitive Wildlife.** Although the existing right-of-way crosses spotted owl dispersal habitat and some reproductive and foraging habitat, only small numbers of trees (fewer than 10 per acre) would be felled and the canopy closure and thermal regulation of the stand would remain unchanged. Consequently, the project would not affect spotted owls or their habitat (Larson, 1998).

No nesting peregrine falcons have been located within the project area. Although potential peregrine nesting habitat is near the project area, no vegetation removal is planned within 0.4 km (0.25 mi) of this habitat (Larson, 1998).

The northern bald eagle is found within the Columbia River Gorge during breeding and wintering months, but no nesting or winter roosting bald eagles have been located within the project area (Larson, 1998). Winter roosting habitat may exist, but would not be affected because few if any trees likely to be used for roosting would be cut. In addition, vegetation management activities would take place at a time of year when eagles normally are not present.

Region 6 Sensitive Species would not be adversely affected because the habitats where they are expected to be found are not areas that would be treated.

### **3.3.2 Status Quo**

Similar to the Proposed Action, wildlife would be temporarily disturbed by workers manually cutting vegetation. However, disturbance would occur more often than for the Proposed Action. Based on past experience, workers would be in the area for several days at least once a year; depending on growth conditions, they may have to enter some sections twice a year. The Status Quo alternative would have no impact on the endangered and threatened trout, steelhead and salmon species because the treatment methods would not change conditions in the Columbia River or tributary streams. Region 6 Sensitive Species would not be adversely affected because the habitats where they are expected to be found are not areas that would be treated.

Potential effects on fish and wildlife from herbicides would not occur because herbicides would not be used.

## **3.4 Soils**

The Columbia River Gorge formed when the Columbia River cut through the Cascade mountains. Part of the Cascade Range uplift, the area is characterized by deeply dissected mountains, steep slopes, and rock outcrops. Soils have developed on steep mountain slopes in materials derived primarily from basalt and andesite and mixed with a small amount volcanic ash (USDA-SCS, 1983, USDA-SCS, 1981). Rock outcrops and cliffs are common and soils are often cobbly. Erosion is active in much of the region and areas of recent mass movement are evident.

Vegetation management can affect soil characteristics such as available soil moisture, nutrient supply, erosion, and slope stability. The amount and severity of impacts is influenced by the vegetation management methods employed. The reduction of viable plant cover due to manual or chemical treatments could result in slight localized



reductions in soil infiltration, the amount of water absorbed by plants, and increased surface run-off, erosion, and off-site movement of sediment. Increased sediment yields could adversely affect other resources including water quality, fish and wildlife, recreation, and vegetation. Herbicides can also affect soil productivity by inhibiting soil microbial activity and the growth of non-target plants.

### **3.4.1 Proposed Action**

Where vegetation is removed or cleared, a slight increase in run-off and some localized erosion and soil movement could occur. Use of manual controls would cause little or no soil disturbance, although the degree of impact would be related to the amount of ground cover affected. Impacts would be alleviated when desirable vegetation becomes established. Clearing near riparian areas could cause minor amounts of sediment to enter streams if the ground surface is disturbed during tree felling or brush removal.

Soil-related impacts from the IVM program's recommended herbicide treatments would be limited and short-term. Herbicide effects depend on their chemical properties and how they interact with the environment. This interaction determines the mobility and persistence of the chemical in the soil environment. All the prescribed herbicides are non-toxic or only slightly toxic to soil microorganisms. Soil microbes are able to break down all of the recommended herbicides. Picloram can stay active in the soil for a moderately long time depending on soil conditions and may exist at levels toxic to plants for more than a year after application at normal rates. Alkaline conditions, fine textured clay soils, and a low density of plant roots can increase picloram's persistence (USDA-FS, et. al.). However, surface soils within the affected corridor are neutral to moderately acidic, medium textured with many coarse fragments, and have prevalent roots. Under normal conditions, long-term buildup of picloram or any of the prescribed herbicides in the soil would be impaired.

The use of biological controls, in particular the successful establishment of low-growing plant communities within the existing corridor, would prevent the need for frequent corrective vegetation management activities. This would reduce or eliminate the long-term disruption of vegetation cover and soils associated with recurrent vegetation management activities. Soils would not be directly affected by the use of biological agents.

In summary, soils impacts of the IVM alternative would be low in intensity but recurrent with successive vegetation treatments. The proposed action, using IVM with herbicides, minimizes disturbance to groundcover and soil. Once low-growing ground cover is established, recurrent impacts from future corrective vegetation treatments would be eliminated.

### **3.4.2 Status Quo**

Current vegetation management practice uses only manual clearing methods. Impacts are similar to the those described for the manual methods in the IVM proposal. However, on steep erodible soils where manual clearing is used instead of herbicides, erosion and sedimentation could be slightly greater than the Proposed Action due to soil disturbance

from workers removing vegetation and annually traversing steep slopes. Without the use of herbicides, vegetation re-establishes itself quickly and workers are required to return more often, resulting in more trampling and disruption to soils. Overall, impacts would be low in intensity and recurrent with successive vegetation treatments.

### **3.4.3 Mitigation**

For both alternatives, if vegetation treatments remove groundcover, the site would be seeded or planted to acceptable low-growing plant species as soon as practicable in order to prevent erosion. Riparian vegetation would not be disturbed if it is not a threat to transmission line reliability.

## **3.5 Water Resources**

The Bonneville-Hood River transmission line traverses rugged terrain dissected by steep drainages. The corridor crosses 15 perennial and 8 intermittent streams. These streams are high-energy, steep gradient waterways which flow into the Columbia River, which is less than 0.8 kilometer (0.5 mile) from the transmission line for most of the length of the right-of-way. The streams do not support adjacent wetland plant communities, and there are no floodplains on or adjacent to the right-of-way.

Section 303(d) of the 1972 federal Clean Water Act requires each state to identify those waters where existing pollution controls are not effective enough to achieve the state's water quality standards. The Columbia River is listed, according to Section 303(d), as water quality limited. From Bonneville Dam to The Dalles Dam the river is listed as exceeding the summer temperature and total dissolved gas standards set for its surface water classification. Resident fish and aquatic life, and salmonid fish spawning and rearing, can be impaired by exceeding these parameters (Oregon DEQ, 1996). No municipal surface water or groundwater sources are crossed by the proposal.

Potential impacts of vegetation management methods on surface water quality include increased sediment yields, herbicide contamination, and increased stream temperatures. Disruption of the soil surface and vegetation increases surface run-off, erosion susceptibility, and the likelihood that soil and herbicides would be transported off-site. Surface waters could also be affected by accidental direct contact from herbicides. Under certain environmental conditions, herbicides can leach through the soil and contaminate groundwater resources. Clearing streamside vegetation increases a stream's exposure to sunlight, possibly raising water temperature.

### **3.5.1 Proposed Action**

All water resources are included in the R zone, defined as the area within 91 m (300 ft) of any surface water. R zone widths and buffer areas for sensitive resources were determined according to the Standards and Guidelines of the Northwest Forest Plan and the Oregon Forest Practices Act.

Within riparian zones all herbicide treatments, except cut-stump treatments using Rodeo™ formulation of glyphosate, would be precluded. Although Rodeo™ is labeled for control of plants growing in or immediately adjacent to water, it would not be used within 3 m (10

ft) of a water resource to comply with Oregon Forest Practice Rules (OAR-629-620-400). Rodeo™ is strongly adsorbed by the soil where it is generally not active because residues are not easily released. If contaminated sediments were transported to surface waters, residues would not adversely affect water quality as a result of routine herbicide application. Broadcast foliar methods are not allowed in any zone, so there is little likelihood of direct contamination of surface water from herbicide spray.

Any amount of applied herbicide that is not degraded, taken up by plants, volatilized, or adsorbed is subject to leaching or transport by surface flows. Because most herbicides move only short distances under normal conditions, the amount of chemical residue actually entering a stream from surface flow is affected by distance to the stream, infiltration and organic layer properties of the soil, and the rate of surface flow. Picloram and dicamba, which could be used in non-riparian zones, are susceptible to transport by surface waters and can leach into groundwater under certain conditions (USDA-FS, et. al.). Because of these properties and their persistence, picloram and dicamba would not be applied within R zones. Picloram can persist in the soil under some conditions, but soils on this project are not conducive to that effect (section 3.4.1). Because of the soil characteristics in this area, the chance of picloram and dicamba reaching ground or surface water is slight. A 91-m (300-ft) R zone buffer between surface water and any zone allowing picloram and dicamba herbicide use is adequate to prevent their transport to water through the soil or via surface flow.

Both manual and chemical treatments could temporarily reduce viable plant cover, lower water interception and transpiration losses by plants, and increase overland and stream flows. The right-of-way crosses streams at roughly a perpendicular angle and has been previously cleared and maintained. The amount of new stream surface exposed by future vegetation management activities would be minimal and impacts on water temperatures would be insignificant. Impacts due to increased sediment levels and stream flows would be low and would be alleviated once desirable vegetation communities are established. Water quality of the Columbia River would not be further degraded because the proposal is not expected to more than temporarily and slightly increase sedimentation of tributary streams.

Overall, the proposed action, using IVM and following the prescribed treatments, would have a low impact on water quality. Proper application and handling of herbicides would minimize the risk of chemical contamination of waters (see section 3.5.3).

### **3.5.2 Status Quo**

The existing vegetation management practices use manual methods similar to those described in the proposed alternative. Impacts would be related to the amount of vegetation removed and the extent of surface soil disturbance.

A slight increase in erosion and sediment yields is expected where clearing activities disturb the surface soil on steep terrain. Due to the area's steep terrain and high erosion risk, compared to the proposal, the existing practice of vegetation management without herbicides could slightly increase the erosion potential and the likelihood of sediment entering surface waters. The increased risk exists because workers would be required to

return annually to keep vegetation within safe limits, thus causing disturbance more often. Impacts would be greatest immediately following treatment and would continue until sufficient ground cover is re-established.

No herbicide treatments are currently used so there is no risk of chemical contamination of surface and ground waters. Similar to the Proposed Action, the amount of new stream surface exposed by future vegetation management activities would be minimal and impacts on water temperatures would be insignificant.

Overall, impacts of this alternative would be low.

### **3.5.3 Mitigation**

For both alternatives, disturbance of vegetation cover would be minimized within riparian buffer zones to avoid surface disturbance, increased run-off, and off-site transport of sediment.

For the Proposed Action, herbicides would be applied only as directed in the IVM prescriptions and according to herbicide label and EPA registration directions. No herbicide would be applied within 3 m (10 ft) of a stream. The cleaning and disposal of pesticide containers and equipment would be done in accordance with applicable federal, state, and local laws and regulations, and in a manner which will safeguard public health, the beneficial uses of water, aquatic organisms, and wildlife.

## **3.6 Visual and Recreational Resources**

The Columbia River Gorge is famous for its scenic qualities--that is why the National Scenic Area was established. As discussed in section 1.1, the Scenic Area legislation recognizes the existence of the Bonneville-Hood River transmission line and allows BPA to continue maintenance activities.

The line can be seen from numerous scenic and recreational sites on both the Oregon and Washington sides of the river, including hiking trails and highways, and from the river itself. The visual presence of the towers, conductors, and related hardware has remained the same throughout the life of the line and will continue to do so. However, the visual character of the right-of-way changes both seasonally and gradually over time as vegetation grows. Extensive clearing or widespread use of herbicides (as in broadcast spraying), could draw attention to the transmission corridor and conflict with the scenic resources of the Gorge.

### **3.6.1 Proposed Action**

After a review of the CRGNSA Management Plan and the proposed vegetation management zones, as well as a field review, the Landscape Architect for the Scenic Area concluded that all sections of the project right-of-way that can be seen from visually sensitive sites have been included in the V zone (lands that have a significant visual resource). No broadcast or aerial application of herbicides would be allowed, thus eliminating the potential to create large areas of dead vegetation that would detract from the visual quality of the area. Although some plant species may change as desirable

vegetation becomes established, the visual qualities of the right-of-way are not expected to change noticeably from current conditions.

### **3.6.2 Status Quo**

The visual quality of the right-of-way would remain the same.

## **3.7 Human Health and Safety**

Effects on human health and safety depend on the vegetation management technique used. The potential for exposure to health and safety effects also varies for workers versus forest residents and visitors.

BPA's vegetation management program is done under contract. While no maintenance worker accidents have occurred on the Bonneville-Hood River right-of-way, in 1997 one worker was killed and another seriously injured in accidents involving manual cutting methods on other rights-of-way.

### **3.7.1 Proposed Action**

#### **3.7.1.1 Manual/Biological Methods**

*Workers.* Re-seeding activities and hand-cutting of unwanted vegetation often require workers to operate heavy or sharp equipment in steep, uneven terrain. This creates the potential for worker accidents. The IVM program is expected to reduce the risk of worker accidents because workers will be required to use chainsaws in steep, inaccessible terrain much less frequently than under the Status Quo alternative, especially in zones SS, Z, and V. The 30-km (19-mi) right-of-way crosses about 26 km (16 mi) of these zones.

*Forest residents and visitors.* Manual and biological methods would not affect the health or safety of forest residents and visitors.

#### **3.7.1.2 Herbicides**

In its FEIS on herbicide use (USDA Forest Service, 1988), the USFS Region Six evaluated a range of health effects studies. The FEIS Quantitative Risk Assessment predicts the amount of human exposure--both to project workers and to the public--from typical forestry operations, and also from a large accidental spill. The Risk Assessment used this information to assess health risks from typical uses in forestry applications, which were compared to EPA standards of acceptable risk for human health effects. The FEIS risk assessment identified as "Moderate" or "High" any predicted risks from Forest Service operations that were greater than EPA standards. Specific mitigation measures were designed to reduce human exposure from these operations and are mandatory for every applicable project on National Forest lands.

BPA has relied on the USFS analysis for this EA. Because typical forestry operations tend to involve herbicide use on larger areas than the areas proposed for this right-of-way management project, the types and magnitudes of risk assessed by the USFS are in general expected to represent the worst case risk for BPA's proposal.

The USFS health effects analyses for the herbicides proposed for use on this project have been compiled in "Herbicide Information Profiles" and are reproduced in Appendix B. Key conclusions from these profiles are summarized below.

*Workers.* Health effects to workers are divided into two categories: general health effects (ranging from eye and skin irritation to tumors; and reproductive effects (effects on workers' reproductive system or progeny). The following summarizes the risk of these types of health effects to workers for the four herbicides proposed for this project:

- |                         |  |
|-------------------------|--|
| Dicamba and Glyphosate: | General health effects: <u>Low or negligible risk</u> for all application methods.<br>Reproductive effects: <u>Moderate risk</u> for backpack spray and hack-and-squirt applicators. |
| Triclopyr:              | General and reproductive effects: <u>Low or negligible risk</u> for all methods except backpack sprayers, for which risk is <u>moderate</u> .  |
| Picloram:               | General and reproductive effects: <u>Negligible risk</u> for all methods.  |

**Mitigation.** Workers will follow label instructions for application of herbicides and for worker protection.

*Forest residents and visitors.* Because BPA does not propose to use aerial spraying of herbicides, the ground-based application methods proposed pose a negligible risk of health effects to forest residents and visitors. Herbicides used for this project would be pre-mixed and brought to the site in a backpack container. No herbicides would be stored at or near the site. Therefore, amounts at the site would be too small to pose a significant risk to human health in the event of a spill. As required by Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), containers and equipment will be cleaned and disposed of in accordance with federal, state, and local laws and regulations.

For more detail on herbicides and their human health effects and mitigation, see Appendix B.

### **3.7.2 Status Quo**

#### **3.7.2.1 Manual Methods**

*Workers:* Current risks of accidents would continue or possibly increase as vegetation cover from repeated manual cuttings becomes more dense. Biological methods pose no risk to workers.

*Forest residents and visitors:* Manual and biological methods would not affect the health or safety of forest residents and visitors.

### **3.7.2.2 *Herbicides***

Because herbicides would not be used, there would be no risk of health effects to workers or forest residents and visitors.

## **3.8 Air Quality**

The Columbia Gorge Scenic Area is classified as a Class II airshed, which allows moderate degradation of air quality.

Air pollution sources associated with manual clearing include exhaust from hand-held equipment and from motorized vehicles, and periodic dust generated by off-road vehicle traffic. Use of herbicides could introduce harmful chemicals into the air.

### **3.8.1 *Proposed Action***

Exhaust from vehicles and machinery such as chain saws would be short-term. Compared to existing conditions, the amount of exhaust would be reduced as the tall, fast-growing vegetation is controlled and replaced by low-growing plants and shrubs, thus reducing the number of return visits required for cutting. Dust from access road vehicle traffic would be short-term.

Herbicide spray in the air would occur in minimal amounts because only manual spot application techniques would be used. Application would also be limited to relatively calm periods (wind at less than 4 km/hr (6 mph) and when temperatures ranged from 7 - 24 C° (45 - 75° F), to minimize volatilization.

### **3.8.2 *Status Quo***

The small amount of exhaust and dust created by vehicles and machinery would be short-term, although compared to the Proposed Action, the amount could be slightly greater due to the need for annual activity to keep tall-growing vegetation within safety limits.

Because herbicides would not be used, air contamination from herbicide spray would not occur.

## **3.9 Other Effects**

There would be no change to land use with either alternative because the right-of-way is already established.

Cultural resources would not be affected because ground-disturbing methods, such as use of mowers, would not be used in either alternative.

## **CHAPTER 4 CONSULTATION, REVIEW, AND PERMIT REQUIREMENTS**

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### **National Environmental Policy**

This EA was prepared pursuant to the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*) and implementing regulations, which require federal agencies to assess the impacts of their proposed actions on the environment. Based on information contained in the EA, a determination would be made that the proposal would either significantly affect the quality of the human environment, in which case an Environmental Impact Statement (EIS) is required; or that the proposal would not have significant impacts, permitting a Finding Of No Significant Impact (FONSI).

### **Threatened and Endangered Species**

The Endangered Species Act of 1973 requires that federal agencies review the consequences of an activity on threatened or endangered species and the habitat on which they depend. The Columbia River Gorge National Scenic Area has determined that there would be no effect on any threatened or endangered wildlife species or its habitat (section 3.3). BPA concurs with this determination. No federally listed endangered or threatened plants were found in the project area (section 3.2).

### **Federal Insecticide, Fungicide, and Rodenticide Act**

FIFRA (7 U.S.C. 136 *et seq.*) regulates the manufacture and use of pesticides, including herbicides. Under the Proposed Action, herbicides would be used to control unwanted vegetation and noxious weeds on BPA's right-of-way. Only EPA-approved herbicides would be used, and only according to manufacturers' directions. Only those herbicides approved for use by the Pacific Northwest Region of the Forest Service would be applied on Forest Service land in the project area. All label instructions pertaining to disposal would be followed. Herbicides would not be stored on the right-of-way and would be applied by licensed applicators only.

### **Solid and Hazardous Waste**

The Resource Conservation and Recovery Act, 42 U.S.C. 6910 *et seq.* regulates the storage, use, and disposal of solid and hazardous waste. Domestic solid waste generated by maintenance crews during vegetation management activities (e.g., triple-rinsed herbicide containers, disposable clothing and gloves, broken cutting tools) must be disposed of in a state-approved sanitary landfill. BPA's maintenance crews would dispose of waste according to these regulations.

### **Federal, State, Areawide and Local Plan and Program Consistency**

The existing project right-of-way is an authorized land use under an existing USFS Land Use Grant and easement agreements on state and private lands. Maintenance activities are subject to the requirements of these agreements, as well as to current environmental laws.



Right-of-way Land Use Grants are prepared in accordance with the requirements of the BPA/USFS 1974 Memorandum of Understanding (MOU). Right-of-way Management Plans were jointly prepared by BPA and the USFS under the terms of the MOU and the federal Land Use Grants. If a decision is made to proceed with the Proposed Action, the original management plans will be updated.

The proposal addresses environmental requirements in the USFS Mediated Agreement and the Northwest Forest Plan. The ecosystem standards and guidelines for management of habitat for late successional and old-growth forest-related species within the range of the northern spotted owl (Northwest Forest Plan) have been considered in developing proposed management zones and prescriptions.

Right-of-way maintenance and upgrades are specifically recognized as an accepted use in the CRGNSA Act.

### **Floodplains and Wetlands, Safe Drinking Water Act**

No floodplains, wetlands, public water systems or sole source aquifers are crossed by the project right-of-way.

### **Global Warming**

“Greenhouse gases,” including carbon dioxide and methane (which contain carbon), absorb and re-radiate infrared radiation, preventing heat loss to space. Activities such as timber harvesting release carbon to the atmosphere and thus potentially affect global warming.

The proposed project would clear small trees and noxious weeds from 30 km (19 mi) of right-of-way. These trees and plants would no longer collect carbon; instead, they would release it as they degrade. The proposed amount of clearing is, however, insignificant to atmospheric carbon balance because the cleared trees are small and most of the noxious weeds contain little, if any, woody growth. In addition, low-growing vegetation would replace most of the cleared plants, thus replacing the carbon reservoirs. Therefore, this project would not contribute to global warming.

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## **Appendix A Public Comments**



## **Appendix B   Herbicide Information Profiles**